### A. PROGRAM AND ACTIVITY DATA

<table>
<thead>
<tr>
<th><strong>PROJECT NAME:</strong></th>
<th>Chernobyl Unit 4 Shelter Implementation Plan (SIP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSISTANCE OBJECTIVE:</strong></td>
<td>Peace and Security (A0012-1.2.1.2)</td>
</tr>
<tr>
<td><strong>PROGRAM AREA:</strong></td>
<td></td>
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<tr>
<td><strong>COUNTRY:</strong></td>
<td>E&amp;E Regional/Ukraine</td>
</tr>
<tr>
<td><strong>ORIGINATING OFFICE</strong></td>
<td>Economic Growth/Energy and Infrastructure</td>
</tr>
<tr>
<td><strong>DATE:</strong></td>
<td>July 27, 2011</td>
</tr>
<tr>
<td><strong>IEE AMENDMENT:</strong></td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td><strong>DCN OF ORIGINAL IEE:</strong></td>
<td>DCN: 2002-UKR-020; DCN: 2005-UKR-027 (AMD 1); DCN: 2009-EE-007 (AMD 2); and DCN 2010-EE-018 (AMD 3)</td>
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<tr>
<td><strong>PURPOSE OF AMENDMENT:</strong></td>
<td>To add funding, extend the period of performance and to correct the LOP funding amount</td>
</tr>
<tr>
<td><strong>IMPLEMENTATION START:</strong></td>
<td>10/1/2002</td>
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<td><strong>IMPLEMENTATION END:</strong></td>
<td>12/31/2014</td>
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<td><strong>LOP AMOUNT:</strong></td>
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<td><strong>AMENDMENT FUNDING AMOUNT:</strong></td>
<td>$18,970,000</td>
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<tr>
<td><strong>CONTRACT/AWARD # IF KNOWN:</strong></td>
<td>ENI-G-00-98-00001-00</td>
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</tbody>
</table>

**Environmental Media and/or Human Health Potentially Impacted** (check all that apply):
- None [ ] Air [ ] Water [X] Land [X] Biodiversity [X] Human health [X] Other [ ]

**Environmental Action Recommended:**
- Categorical Exclusion: [ ] Positive Determination: [X]
- Negative Determination: [ ] Deferral: [ ]
- Neg. Deter. with Conditions: [ ] Exemption: [ ]
B. BACKGROUND AND ACTIVITY/PROGRAM DESCRIPTION

1. Proposed Federal Action:

To contribute to the multi-donor funded, European Bank for Reconstruction and Development led, Chernobyl Shelter Fund’s Shelter Improvement Project (SIP). The SIP will build a new shelter containment system to ensure that no unintended releases of radioactive material occur due to collapse of the existing, unstable shelter structure.

2. Program Overview:

a. Background

The Chernobyl nuclear power plant accident released substantial radioactive material into the atmosphere and the surrounding lands. The Ukraine Government has established an Exclusion Zone around the site due to the continued contamination of the soils and groundwater. In 1996, the G-7 signed a Memorandum of Understanding on the Closure of the Chernobyl Nuclear Power plant that included provision for support of a Shelter to stabilize and contain the destroyed reaction #4 and the radioactive materials that were released in the accident. A Fund was created at the EBRD to finance the shelter improvement project. The US and 23 other countries have thus far contributed to the Fund.

b. Activity Description

The primary objective of the program is to stabilize and replace the deteriorating “sarcophagus” that entombs the highly radioactive remains of the destroyed Chernobyl Unit 4 Reactor which was constructed in haste, under extremely hazardous conditions immediately following the 1986 accident. The Soviet-era sarcophagus was never intended to serve as a permanent containment structure or solution to the problem posed to human health and the environment by the radioactive remnants of Unit #4 and has substantially deteriorated.

The SIP identifies twenty-two tasks needed to convert the sarcophagus to a more environmentally stable and safe condition. The tasks are intended to accomplish five goals:

1) Reduce the probability of shelter collapse;
2) Reduce the consequences of a shelter collapse should one occur;
3) Improve nuclear safety;
4) Improve worker and environmental safety at the shelter; and
5) Develop a long-term strategy for conversion of the shelter to an environmentally safe site.

Work to achieve stabilization is largely complete. The first step in the process was to stabilize the existing structure to ensure that its collapse would not result in a significant release of radioactive material. Completion of this effort in 2007 reduced the risk of collapse from 1 in 100 to 1 in 100,000. The principal remaining activity under the SIP is to construct a New Safe Confinement (NSC) capable of enclosing both the existing sarcophagus and the destroyed Unit 4, thereby preventing radioactive releases to the environment for 100 years while a
permanent clean-up of the site is affected. It is intended to replace the present containment structure, also known as a sarcophagus or object shelter, that was constructed after a “beyond design-basis accident” destroyed Unit 4 on April 26, 1986.

A contract for design and construction of this facility was signed in September 2007 with French consortium Novarka, which is to complete the detailed design of the NSC, obtain the Ukraine Nuclear Safety Regulator’s approval of that design, and then construct the NSC. The overall estimated cost of the SIP in May 2008 was $1,390,142,000, but in July 2010, the Project Management Unit revised the estimate to €1.55 billion or $2.04 billion. The cost increases are a result of inflation, modifications to the NSC design, greater accuracy in costing the design, the loss of value of the U.S. dollar as compared to the Euro, delays in the projected construction schedule due to unexpected delays in NSC contract negotiation and signing, and unanticipated increases in commodity costs (particularly for steel and Ukrainian labor).

On March 15, 2010, the EBRD reported to the London meeting of the Assembly of Donors, that most of the 22 Tasks and 9 out of the 10 Programmatic milestones that comprised the SIP have been completed. Much of their reporting is based on the International Advisory Group (IAG) review of the Chernobyl Shelter Implementation review. The major issues that need to be resolved before the SIP can be fully implemented include the following:

- Several design issues need to be urgently resolved, including the main crane system, the steelwork corrosion protection / arch annulus climate control and the interfaces at the eastern and western walls.
- Prior to sliding the NSC into place, the existing Vent Stack needs to be replaced.
- The construction of end walls at the interfaces of both the western and eastern ends of the NSC is critical to the overall confinement of the Object Shelter. This activity is currently not funded.

The USG has provided to date over $200 million to the CSF. The EBRD estimates that additional funds totaling €740 million are needed to complete the Shelter Implementation Plan (€600 million) and the Interim Spent Fuel Facility (€140 million) that is financed through the EBRD Nuclear Safety Account.

To provide a detailed site-based assessment of the project to inform USG senior decision makers, an interagency (State, USAID, NRC, and DOE) site review team visited Ukraine, Slavutych and Chernobyl on October 18-22, 2010. The team visited with EBRD, GOU, other donor, regulatory, environmental, Chernobyl Nuclear Plant, and key contractor (PMU and Novarka) personnel. One aspect of the site review was on environmental monitoring and safety. The Europe and Eurasia Bureau Environmental Officer participated in the site visit.

C. COUNTRY AND ENVIRONMENTAL INFORMATION

1. Country Baseline Information Related to the Project

The Chernobyl disaster was a nuclear reactor accident at the Chernobyl Nuclear Power Plant near Pripyat Ukraine (On 26 April 1986 01:23:45 a.m), exploded. The explosion of unit 4 of the Chernobyl nuclear power plant was caused by deficiencies in the design of its RBMK reactor and its operation. Radioactive material was discharged outside the destroyed reactor, contaminating a large area: tens of
thousands of people were evacuated from within a 30 km zone around the plant and other areas in Ukraine, Belarus and Russia were heavily affected.

It is considered to be the worst nuclear power plant disaster in history and Four hundred times more fallout (Fallout is the residual radiation hazard from a nuclear explosion) was released than had been by the atomic bombing of Hiroshima. The plume drifted over extensive parts of the western Soviet Union, Eastern Europe, Western Europe, Northern Europe, and eastern North America, with light nuclear rain falling as far as Ireland. Large areas in Ukraine, Belarus, and Russia were badly contaminated, resulting in the evacuation and resettlement of over 336,000 people. According to official post-Soviet data, about 60% of the radioactive fallout landed in Belarus. The Chernobyl accident in 1986 was the result of a flawed reactor design that was operated with inadequately trained personnel. The main cause of the Chernobyl accident lay in the coincidence of severe deficiencies in the design of the reactor and of the shutdown system and the violation of procedures. The lack of “safety culture” in the responsible organizations of the Soviet Union resulted in an inability to remedy such design weaknesses, even though they had been known of before the accident.

The 2005 report prepared by the Chernobyl Forum, led by the International Atomic Energy Agency (IAEA) and World Health Organization (WHO), attributed 56 direct deaths (47 accident workers, and nine children with thyroid cancer), and estimated that there may be 4,000 extra cancer deaths among the approximately 600,000 most highly exposed people. Although the Chernobyl Exclusion Zone and certain limited areas remain off limits, the majority of affected areas are now considered safe for settlement and economic activity. After explosion of unit 4, the Ukrainian government continued to let the three remaining reactors operate because of an energy shortage in the country. A fire broke out in the turbine building of reactor 2 in 1991 the authorities subsequently declared the reactor damaged beyond repair and had it taken offline. Reactor 1 was decommissioned in November 1996 as part of a deal between the Ukrainian government and international organizations such as the IAEA to end operations at the plant. On 15 December 2000, then-President Leonid Kuchma personally turned off Reactor 3 in an official ceremony, effectively shutting down the entire plant transforming the Chernobyl plant from energy producer to energy consumer.

The agreement to build the Chernobyl power plants dates from 1966, when the former Soviet Union decided to develop nuclear production of electricity. The RBMK reactor design also dates from this period. Six 1 000 MWe reactors were planned at that time. Unit 1, which begin production in 1977, stopped in November 1996. In December 1997, it was decided to decommission. Unit 2, which was first connected to the grid in December 1978, was stopped in 1991 after damage due to fire. The Ukrainian national authorities decided to definitely close this plant in March 1999. Unit 3, which started in 1981 has had many shut downs for maintenance, inspections and repairs since 1997. In June 2000, the Ukrainian authorities decided to close it definitely on 15 December 2000. Units 5 and 6 were under constructions at the site at the time of accident, but were never finished.

According to the International Portal of the ICRIN Project, on 26 April 1986, the most serious accident in the history of the nuclear industry occurred at Unit 4 of the Chernobyl nuclear power plant in the former Ukrainian Republic of the Soviet Union. The explosions that ruptured the Chernobyl

reactor vessel and the consequent fire that continued for 10 days or so resulted in large amounts of radioactive materials being released into the environment.

The cloud from the burning reactor spread numerous types of radioactive materials, especially iodine and caesium radionuclides, over much of Europe. Radioactive iodine-131, most significant in contributing to thyroid doses, has a short half-life (8 days) and largely disintegrated within the first few weeks of the accident. Radioactive caesium-137, which contributes to both external and internal doses, has a much longer half-life (30 years) and is still measurable in soils and some foods in many parts of Europe, see Fig. 1. The greatest deposits of radionuclides occurred over large areas of the Soviet Union surrounding the reactor in what are now the countries of Belarus, the Russian Federation and Ukraine.
An estimated 350,000 emergency and recovery operation workers, including army, power plant staff, local police and fire services, were initially involved in containing and cleaning up the accident in 1986–1987. Among them, about 240,000 recovery operation workers took part in major mitigation activities at the reactor and within the 30-km zone surrounding the reactor. Later, the number of registered "liquidators" rose to 600,000, although only a small fraction of these were exposed to high levels of radiation.

More than five million people live in areas of Belarus, Russia and Ukraine that are classified as 'contaminated' with radionuclides due to the Chernobyl accident (above 37 kBq m\(^{-2}\) of \(^{137}\text{Cs}\)). Amongst them, about 400,000 people lived in more contaminated areas – classified by Soviet authorities as areas of strict radiation control (above 555 kBq m\(^{-2}\) of \(^{137}\text{Cs}\)). Of this population, 116,000 people were evacuated in the spring and summer of 1986 from the area surrounding the Chernobyl power plant (designated the "Exclusion Zone") to non-contaminated areas. Another 220,000 people were relocated in subsequent years.

Unfortunately, reliable information about the accident and the resulting dispersion of radioactive material was initially unavailable to the affected people in what was then the Soviet Union and remained inadequate for years following the accident. This failure and delay led to widespread distrust of official information and the mistaken attribution of many ill health conditions to radiation exposure.

The Chernobyl Nuclear Power Plant (ChNPP) and the Chernobyl Exclusion Zone (CEZ) which is the area planned for the NSC construction, is located north of the Kiev region on the Pripyat River, near its confluence with the Uzh River. The NSC site lies in the part of Ukraine that was contaminated with radionuclides following the Chernobyl disaster. The ChNPP site is 14 km northwest of suburbs of Chernobyl town, 60 km west of Slavutich, and about 150 km north of Kiev (Figure 2.1). ChNPP is in the center of the 10-km-radius controlled access area with restricted special administrative regime established by the legislation of Ukraine. Special permission is required to enter the CEZ. Before the accident in 1986, the ChNPP site was administratively part of the Chernobyl district in the Kiev region. In mitigating the consequences of the 1986 disaster and actual radioactive contamination of the area (Kashparov et al. 2001) the entire population within a radius of 30 km of the ChNPP was evacuated. Since then, habitation and civil economic activity within the CEZ have been prohibited, except for those provided for by Ukrainian Law.

The north part of Kiev and Zhitomir Regions geographically belongs to the provincial area of mainly mixed forests called Pripyat Polesie. Pripyat Polesie is the part of the drainage basin of the Pripyat River, a tributary of the Dnieper, which is the main water artery of Ukraine. The ChNPP is located in the Kiev region within the Exclusion zone, which is radioactively contaminated due to the accident at ChNPP unit-4. In accordance with the law of Ukraine the area is considered as a radiation hazardous zone. The main constraints assuring environmental safety during NSC construction and operation is the requirement to make sure that implementation of the NSC construction and operation does not result in continuing deterioration of the environmental features established in the Shelter location area.

The Exclusion Zone established soon after the Chernobyl disaster in 1986 encompasses more than 1,600 square miles of northern Ukraine and southern Belarus, an area of forest, bogs, lakes, and rivers

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typical of Polissya. Populations of typical animals like wolves, wild boar, roe deer, red deer, moose, and beaver apparently have multiplied enormously and begun expanding outside the zone. The area has herds of European wisent (Bison bonasus). By early 2005, a herd of 21 rare Przewalski’s horses that had escaped from captivity in the quarantined area six years earlier had bred successfully and expanded to 64. Even extremely rare lynx have appeared, and there are reports of tracks of brown bears, an animal not seen in the area for several centuries. The most recent count by the authorities showed that the zone is home to 66 species of mammals and 280 species of birds, many of them rare and endangered. A 2006 report by the Chernobyl Forum—an international panel of 100 experts assembled by the UN, the World Health Organization, and the International Atomic Energy Agency—lent scientific weight to the view that by stopping hunting, agriculture, and other human activities in the zone the Chernobyl disaster allowed wildlife to flourish. “The Exclusion Zone,” the authors concluded, “has paradoxically become a unique sanctuary for biodiversity.” A 2005 book, The Wormwood Forest: A Natural History of Chernobyl, made this same case. This claim is not without controversy, however, as a few researchers suggest that some species may be suffering from exposure to radiation (Higgenbotham, 2011).  

Since the Exclusion Zone is still heavily contaminated, staff of the ChNPP generally reside in Slavutych which is situated on the left bank of the Pripyat river, 50 from Chernobyl. The city was built in 1986, shortly after the Chernobyl nuclear disaster to host personnel of the Chernobyl nuclear power plant and their families, evacuated from the abandoned city of Pripyat. Slavutych has about 25,000 inhabitants. The economic and social situation of the city is still heavily influenced by the power plant and other Chernobyl zone installations because most of the residents worked or still work there.  

2. Description of Relevant Environmental and Natural Resources Policy, Law and Regulation

The Ministry of Ecology and Natural Resources (MENR) is the central national authority responsible for environmental management and biodiversity conservation. The MENR implements national environmental policies and laws, and coordinates environmental activities with other ministries and executive agencies. The Environmental Inspectorate Unit within the MENR oversees all aspects of the MENR’s work, including management of protected areas.

The MENR interacts with the Verkhovna Rada, especially through the Committee on Environmental Policy, Nature Management and Elimination of the Consequences of the Chernobyl Disaster. The Committee develops environmental strategies and policies, drafts laws and regulations for the Rada’s consideration, assesses their implementation, and holds public consultations and parliamentary hearings. In the current structure, MENR manages the State Ecological Inspectorates and coordinates the activities of State Committees on Land, Water, and Forestry Resources. It also manages protected areas and is responsible for developing of the National Ecological Network.

At the regional (oblast) level, environmental management, including biodiversity conservation, is the responsibility of offices of the State Department of Environmental Protection in Ukraine’s 24 oblasts, the cities of Kiev and Sevastopol, and the Autonomous Republic of the Crimea. These offices coordinate oblast-level activities with the MENR. The EIU has representatives in each oblast.

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7 Ukraine’s Foreign Assistance Act Section 119 Biodiversity Assessment, 2011, p. 7.
8 http://en.wikipedia.org/wiki/Slavutych
The Ukrainian Government has improved its environmental legislation since independence and now seeks to apply EU standards to its environmental regulation and monitoring. A nuclear safety regulator is also in existence that monitors the safety of the Chernobyl site.

The Republic of Ukraine’s framework environmental legislation is the Law of Ukraine On Environmental Protection of June 25, 1995, No.1264-XXII. Requirements for environmental impact assessment are found in Article 28 which provides for the following:

State Ecological Examination by Experts

State ecological examination shall be conducted by units of experts or specially established commissions of the Ministry for Environmental Protection and Nuclear Safety of Ukraine and its local bodies on the basis of the principles of legality, scientific substantiation, comprehensiveness, independence, transparency and long-term forecasting. (Section 1 of Article 28 amended in conformity with Law No.81/96-VR of March 6, 1996) The objectives of state ecological examination shall be a) determination of ecological safety of economic and other activity which at the present time or in future can directly or indirectly produce a negative effect on the environment; b) establishment of conformity with the requirements of legislation on environmental protection for pre-project, pre-planning, design work and other decisions; c) assessment of the completeness and soundness of projected measures on environmental protection and the health of the population which is carried out by the Ministry for Environmental Protection and Nuclear Safety of Ukraine jointly with the Ministry of Public Health of Ukraine. The state ecological examination can involve respective bodies of state administration of Ukraine, representatives of scientific research, project, design, and other institutions and organizations, higher educational establishments, the public, and experts of international organizations.

Discussions with MENR counterparts responsible for reviewing environmental impact assessments indicated that the budget was lacking for expert reviews and the ability to content with technical complex environmental concerns such as those presented by the Chernobyl Shelter Improvement Project.

In addition to the environmental protection framework, Ukraine has promulgated five additional laws that address various social, environmental, health and safety aspects of the Chernobyl disaster.

- Law of Ukraine "On the National Program for Putting out of Operation the Chernobyl Atomic Energy Station and Transforming the Object “Ukrytia” (Shelter) into an Environmentally Safe System" of 15.01.2009 № 886-VI
- Law of Ukraine "On Forming the Fund for Eliminating the Aftereffects of the Chernobyl Atomic Energy Station Disaster and for Providing Social Protection to the Population" of
D. EVALUATION OF ACTIVITY WITH RESPECT TO ENVIRONMENTAL IMPACT POTENTIAL

In accordance with 308.3.11(c), in awarding cost-type grants to PIOs with their own environmental policies, for activities that are not exempt or categorically excluded from environmental analysis under 22 CFR 216, USAID will rely upon the EBRD’s application of its own environmental policies to the activity proposed and include appropriate language in the PIO agreement. Any environmental conditions proposed to ensure adequate environmental review of the activity proposed will have due regard to both the independence and sovereignty of the PIO and the purpose and intent of the

The EBRD conducted comprehensive Environmental Health and Safety Audit was concluded in 2007 and the PMU prepared EAP Self Assessments in 2007, 2008, and 2010. The EBRD has provided recently at our request an update on its Environment and Safety Monitoring under the Chernobyl Shelter Fund. This report confirms that EBRD is reviewing on a monthly basis safety and environmental data and that international best practice and standards are being applied.

As part of the Interagency Chernobyl Site Review Team, the EE Bureau Environmental Officer conducted a site visit to the ChNPP, the EBRD Project Management Unit and to various ministries and institutions involved with the SIP in Kiev from October 17-22, 2010. The following provides a summary of findings and recommendations from that visit.

1. Major Environmental Drivers:

   a. **Object Shelter Collapse:** Collapse of the Object Shelter would cause release of a radioactive cloud and dispersal of radioactive material into the global environment. The Shelter Stabilization Project that was completed in 2007 reduced the risk of collapse from 1 in 100 to 1 in 100,000.

   b. **Surface water contamination.** Cooling ponds cover 22 square kilometers and consist of lined canals which drain into cooling water ponds which are constrained by a clay dam. There are 16 outlets of the stormwater system which drain into the system. The system is monitored
monthly. Surface water is not highly contaminated and in line with drinking water standards. However, sediment is highly contaminated. A method for addressing contaminated sediment to prevent it from becoming a radioactive dust problem if the system is dewatered has not been identified. Although the system is currently being maintained to ensure the required level of safety, if clay dam breaks millions of curies of radiation will be released into the Pripyat River which would ultimately flow into the Black Sea, contaminating drinking water supplies of millions of people. There is currently no funding to fully assess this issue, and it is currently considered a longer term problem, and is not included as part of the SIP project.

c. **Standing Water in the Basement of the Object Shelter:** Rainwater has collected in the basement of the Object Shelter. It is contaminated with high levels of radioactive transuranics with a half-life of over 10,000 years. It is also contaminated with organic material resulting from the use of dust suppressants... Once the New Safe Confinement (NSC) is in place, it is estimated that it will take 18 months for all of the standing water in the basement to evaporate. There could then be an issue of the release of radioactive dust. Normally, this type of dust would be dewatered and encased in cement. However, the process for this is complicated by the presence of transuranics and organic material. The current plan is to maintain standing water until a technical solution can be found. There was some concern that the standing water issue should be resolved prior to the installation of the NSC. This is a complex issue that requires further review by the international community.

d. **Groundwater Contamination:** Groundwater is shallow at 4 meters, and the site is located next to the extensive wetland system associated with the Pripyat River. There is significant groundwater contamination, although the plume moves slowly and is not expected to interact with the surface water system for another 5,000 years. By that time the plume will be diluted and not anticipated to be an issue for surface water drinking water sources. Groundwater monitoring is undertaken by several organizations. ChNNP; Eco Center Ministry of Emergency Situations within the 30 KM exclusion zone; Research Institute of Safety.

e. **Ongoing Management of Worker Health and Safety Risks:** Worker exposure is the most significant ongoing acute environmental health risk. The SIP has in place a state of the art health and safety protection program. The Project has supported changes to Ukrainian Law related to worker health and safety personal protective equipment and fall protection measures that have modernized the system and significantly reduced environmental threats to onsite workers. 7,000 people are constantly being monitored.

f. **Radioactive Waste Detection and Disposal:** There are 800 buried sites at Chernobyl, similar to the Hanford site in the U.S. Radioactive waste disposal is a long term issue. There is a temporary low level onsite radioactive waste disposal location where 80% of the soil that has been excavated has been stored. This soil can be used as backfill material. The remaining 20% of the excavated soil contains high level radioactive waste and is stored offsite. There is no long term storage facility for spent fuel in Ukraine.

2. **Environmental Regulatory Compliance:**

22 CFR 216 requires environmental impact assessment for all projects and activities receiving USAID funding. Although 22 CFR 216 is flexible and allows for Public International Organization (PIO’s) to utilize their own procedures in fulfilling USAID’s requirements, USAID is required to monitor these
programs to ensure that compliance. In reviewing environmental compliance for the SIP, the following areas were evaluated: 1) Development of appropriate environmental impact assessment documentation; 2) Environmental Mitigation; and 3) Monitoring and Reporting; and, 4) Meeting Host Country Laws and Regulations. A summary of findings with respect to these three areas is provided below:

a. **Environmental Impact Assessment:** The environmental impact assessment procedures applied throughout implementation of the SIP appear to meet or exceed USAID’s environmental compliance procedures. The table below summarizes the environmental impact assessment documents that have been completed to date and notes their relationship to similar EIA documentation required under 22 CFR 216. The environmental impact assessments prepared for the licensing packages have not been provided to USAID and thus have not been reviewed for quality.

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<tr>
<th>EBRD EIA Document</th>
<th>22 CFR 216 Equivalent</th>
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<tr>
<td>1997 Health and Safety Audit</td>
<td>Environmental Assessment</td>
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<tr>
<td>1998 Environmental Action Plan</td>
<td>Environmental Mitigation and Monitoring Plan</td>
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<tr>
<td>Environmental Impact Assessment for Licensing Packages 1-4</td>
<td>Environmental Assessment</td>
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<tr>
<td>Environmental Impact Assessment of Foundation, Steel Arch and Main Crain being prepared as part of Licensing Package 5 (pending)</td>
<td>Environmental Assessment for Final Design of NSC</td>
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<tr>
<td>Environmental Impact Assessment of Construction and Auxiliary Operations being prepared as part of Licensing Package 6</td>
<td>Environmental Assessment for Construction of SIP.</td>
</tr>
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b. **Mitigation Measures:** The Project Management Unit prepares self-assessments of compliance with the mitigation measures contained in the Environmental Action Plan on an annual basis. The PMU pays careful attention to mitigation measures and USAID is assured that this aspect of the program is being carefully implemented.

c. **Monitoring and Reporting:** The Project Management Unit oversees an extensive environmental monitoring program that meets 22 CFR 216 requirements. A total of 168 environmental monitoring reports are prepared each year. A summary of required reporting is provided below.

   i. Human Health and Safety: There is a state of the art dosimetry monitoring systems that detects body burdens of radioactive exposure. Only two people have been found to have exposures that exceed acceptable levels during the past five years. Ingestion has been found to be the primary reason, from eating, smoking, in contaminated areas.
ii. State of the art automated monitoring system soon to be in place

iii. Environmental Monitoring Requirements:

- Monthly
  - Groundwater contamination (SNRCU)

- Quarterly
  - Water resource management (MoEmerg, Slavutich Tax, Regional Eco-admin)
  - Air quality (Slavutich Tax, Regional Eco-admin)
  - EIA update (Ministry of Ecology, Kyiv Region Eco-admin, mass media)
  - Unit 4 Radiation Safety and Ecological Report (SNRCU, EZA, Chief State Sanitary Doctor)

- Semi-annually
  - Exclusion Zone monitoring wells (EZA)

- Object Shelter Safety Status Report (SNRCU, MoHealth)

- Bi-annually
  - Water use and wastewater disposal (MoEcology)

- Annually
  - Groundwater (Geological Institute)
  - Eco-expenses (Slavutich)
  - Dangerous Waste (MoEconomy, MoStatistics)
  - Unit 4 Ecological Report (PMU)
  - Map of waste generation (MoEcology, Sanitary-Epidemiological)
  - Toxic waste generation, location (MoEcology)
  - Water consumption, wastewater disposal rates (WRS)
  - Planned water consumption balance (WRS)
  - Atmospheric releases (IAEA)
  - Discharges to environment (IAEA)

d. Host Country Environmental Regulatory Requirements: Review of environmental impact assessment for licensing packages and conducting environmental audits during construction is required under Ukrainian Law and is an essential compliance component of international environmental impact assessment procedures. The Ministry of Environment reported to us that they have undertaken expert reviews of a few projects related to Chernobyl, and most of those projects received positive feedback and required only minor adjustments. Ecological audits are normally required by the Government during the construction phase. The Law on Environmental audit was passed four years ago. However, it is not working properly due to lack of funding. They noted that would be useful if this would be implemented for the Chernobyl project. In addition to the enforcement provisions that it adds, it also includes a public participation component, which if implemented properly could engender public trust in the progress of the Chernobyl project. There is currently insufficient funding for expert reviews of licensing packages and ecological audit.
3. **Findings:**

a. The environmental review process conducted by EBRD and the Ukrainian government is quite good and both have conducted vigorous Environmental Impact Assessments (EIAs). This information has not been transmitted to the donors, and donors have not been given an opportunity to comment on them.

b. However, we also find that the Ministry of Ecology and Natural Resources needs more funding in order to conduct environmental reviews and independent ecological audits specifically related to the construction, which are normally a part of the process.

c. The PMU is highly qualified and experienced, understanding the range of environmental impacts and creating a good monitoring program and internal reporting process. Again, however, this information has not been made readily available to donors.

d. One of the findings was that it was reported that the completed stabilization effort had substantially reduced the risk of collapse of the Object Shelter. This represents the mitigation of the immediate environmental threat, and meets one of the key objectives of the SIP.

e. The team had residual concerns about the potential environmental impact of the standing water in the basement of the destroyed reactor. This issue could become more difficult to resolve once the shelter is completed. Further information on this issue would be needed to complete the assessment.

E. **RECOMMENDED ENVIRONMENTAL ACTIONS**

1. **Recommended Environmental Determination:**

   **Positive Determination:**

   A positive determination is recommended pursuant to 22 CFR 216.2 (d) (1) (ix) for power plants and due to the extremely hazardous nature of the Shelter Improvement Project.

2. **Conditions**

   a. USAID will support an in-house review of the provided environmental impact assessments and other documents to confirm that the work performed is consistent with the international (EBRD, USAID) standards.

   b. The AOTR will continue to participate in the Assembly of Contributors and carefully review technical reports issued regarding compliance with health and safety protection measures. S/he will notify the EE Bureau Environmental Officer if environmental issues or concerns are raised during these discussions.

   c. USAID will rely upon the EBRD’s application of its own environmental policies to the activity proposed and include appropriate language in the EBRD grant agreement.
d. The EBRD should provide ready access to their monitoring reports and Ukrainian Environmental Impact Assessment upon request of USAID.

3. Monitoring and Reporting

Monitoring requirements are tailored and specific to each program. In general:

a. The Agreement Officer’s Technical Representative (AOTR), with the support of the Bureau Environmental Officer, is responsible for monitoring compliance of activities by means of field inspections and reviews of records.
b. If at any time the project is found to be out of compliance with the IEE, the AOTR shall immediately notify the MEO who in turn shall notify the Bureau Environmental Officer.
c. Implementing partners shall report on environmental compliance requirements as part of their routine project reporting to USAID.
d. A summary report of compliance relative to this IEE shall be sent to the BEO on an annual basis, normally in connection with preparation of the Mission’s annual environmental compliance report required pursuant to ADS 203.3.8.5 and 204.3.3.
e. The BEO or his/her designated representative may conduct site visits or request additional information for compliance monitoring purposes to ensure compliance with this IEE, as necessary.

F. MANDATORY INCLUSION OF ENVIRONMENTAL COMPLIANCE REQUIREMENTS IN SOLICITATIONS, AWARDS, BUDGETS AND WORKPLANS

a. USAID will rely upon the EBRD’s application of its own environmental policies to the activity proposed and include appropriate language in the EBRD grant agreement.
b. This IEE shall be provided as an attachment to the EBRD grant agreement.

G. LIMITATIONS OF THE IEE:

This IEE does not cover activities involving: (All of these apply to Categorical Exclusions. If included under Section E.1, then delete from below):

1. Classes of actions normally having a significant effect on the environment pursuant to 22 CFR 216.2(d)(1):
   i. Programs of river basin development;
   ii. Irrigation and water management;
   iii. Agricultural land leveling
   iv. Drainage projects
   v. Large scale agricultural mechanization
   vi. Resettlement Projects
   vii. New land development
   viii. Penetration road building and road improvement
   x. Industrial plants
   xi. Potable water and sewerage projects

2. Activities affecting endangered species, introducing exotic species;

3. Activities resulting in wetland or biodiversity degradation or loss;
4. Support to extractive industries (e.g. mining and quarrying).
5. Support for activities that promote timber harvesting;
6. Activities involving support for regulatory permitting;
7. Activities involving privatization of industrial or infrastructure facilities;
8. Activities supporting project preparation, project feasibility studies, engineering design, to in support of any activity listed in 22 CFR 216.2(d)(1);
9. Assistance for the procurement (including payment in kind, donations, guarantees of credit) or use (including handling, transport, fuel for transport, storage, mixing, loading, application, cleanup of spray equipment, and disposal) of pesticides or activities involving procurement, transport, use, storage, or disposal of toxic materials. Pesticides cover all insecticides, fungicides, rodenticides, etc. covered under FIFRA – ‘Federal Insecticide, Fungicide, and Rodenticide Act’;
10. Procurement or use of genetically modified organisms (GMOs);
11. DCA or GDA programs.

Any of the above actions would require an amendment to the IEE approved by the E&E Bureau Environmental Officer (EE/BEO).

H. REVISIONS:

Pursuant to 22 CFR 216.3(a) (9), if new information becomes available that indicates that activities covered by the IEE might be considered “major” and their effect “significant,” or if additional activities are proposed that might be considered “major” and their effect “significant,” this environmental threshold decision will be reviewed and, if necessary, revised by the Mission with concurrence by the BEO. It is the responsibility of the USAID COTR/AOTR to keep the MEO and BEO informed of any new information or changes in the activity that might require revision of the IEE.

I. RECOMMENDED ENVIRONMENTAL THRESHOLD DECISION

A positive determination is recommended pursuant to 22 CFR 216.2 (d) (1) (ix) for power plants and due to the extremely hazardous nature of the Shelter Improvement Project. USAID will rely upon the EBRD’s application of its own environmental policies to the activity proposed and include appropriate language in the EBRD grant agreement.
USAID Approval of Recommended Environmental Threshold Decision:

Approval:  
Jerry Bisson, Director, Office of Economic Growth  
____________________  
Date  
9-09-2011

Clearance:  
Robert Ichord, Director, AOTR/  
Director, Division of Energy and Infrastructure  
____________________  
Date  
9/9/2011

Concurrence:  
Jamshid Heidarian, Preparer  
____________________  
Date  
9/12/2011

Distribution:  
IEE File  
AOTR Project Files